**Chapter 1**

**HTML**

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| **1.1** | **Basic of HTML** | |
| **1.1.1** | **What is HTML** | |
|  | HTML stands for Hyper Text Markup Language that is used for developing webpages. HTML documents must start with <!DOCTYPE html> and it begin with <html> and end with </html>. HTML tags define the structure and semantics of the content, such as headings, paragraphs, images, links, tables and more. | |
|  | **Use of HTML** | |
|  | Basic use of html is creating webpages.  Its main use is to define the content and layout of a webpage like formatting of the text, link or navigation, images or multimedia like videos or audios, list or bullets, forms or user inputs, | |
|  | **About different Web browser** | |
|  | There are so many Web browser like opera, chrome, edge, safari, Firefox that browser is a software application specifically for the purpose of reading HTML instructions and displaying the resulting Web page. It is a fully functional software that can interpret and display HTML Web pages, applications, JavaScript, AJAX and other content hosted on Web servers. HTML is responsible for telling a Web browser how text and other objects in a Web document should appear. | |
| **1.1.2** | **HTML version** | |
|  | **HTML** | **1991** |
|  | **HTML +** | **1993** |
|  | **HTML 2** | **1995** |
|  | **HTML 3** | **1997** |
|  | **HTML 4** | **1999** |
|  | **HTML 5** | **2012** |
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|  | **HTML 1** | |
|  | Limited markup elements and attributes.  Simple structure without support for styles or multimedia. | |
|  | **HTML 2** | |
|  | Introduced some new elements and attributes, like tables and ordered lists. | |
|  | **HTML 3** | |
|  | Enhanced support for tables, forms, and image maps.  Support for more presentation elements, such as fonts and colors. | |
|  | **HTML 4** | |
|  | Added support for CSS (Cascading Style Sheets) for better presentation and layout control.  Introduced new elements like iframes and embedded objects (e.g., audio and video). | |
|  | **HTML 5** | |
|  | Improved support for multimedia (audio and video) without the need for plugins.  New semantic elements like header, nav, section, article, etc., providing better document structure.  Introduced new form elements and attributes, including input types for dates, emails, and more.  Added support for canvas and SVG for richer graphics and animations.  Included the Geolocation API, Web Storage, Web Workers, and more for enhanced web applications. | |
| **1.1.3** | **Structure of HTML** | |
|  | The structure of HTML (Hypertext Markup Language) follows a hierarchical format   1. Document Type Declaration (DTD): The first line of an HTML document is the Document Type Declaration, which specifies the version of HTML being used.   For HTML5, the declaration is simply:  <!DOCTYPE html>   1. HTML Tag: The <html> tag serves as the root element of an HTML document. It encapsulates all other elements in the document.   <!DOCTYPE html>  <html>  <! -- The rest of the HTML document goes here -->  </html>   1. Head Section: The <head> section contains meta-information about the document, such as the title, character encoding, linked stylesheets, and metadata.   <head>  <meta charset="UTF-8">  <title>Page Title</title>  <! -- Other meta-information and links to stylesheets/scripts -->  </head>   1. Body Section: The <body> section contains the visible content of the web page, including text, images, multimedia, and other HTML elements.   <body>  <! -- Content of the web page goes here -->  </body>   1. Content Structure: Within the <body> section, the content is structured using various HTML elements such as headings, paragraphs, lists, images, links, etc.   <body>  <h1>Main Heading</h1>  <p>This is a paragraph. </p>  <ul>  <li>List item 1</li>  <li>List item 2</li>  </ul>  <img src="image.jpg" alt="Image description">  <a href="https://example.com">Link</a>  <! -- More content goes here -->  </body>   1. Comments can be added in an HTML document using the <! -- comment text --> syntax. They are not displayed on the web page but can be helpful for developers to add notes and explanations within the code. | |
| **1.2** | **Basic Controls** | |
| **1.2.1** | **form (method type, action...)** | |
|  | the <form> element is used to create an interactive form on a web page. The method, action, and other attributes of the <form> tag determine how the form data is submitted and processed  method attribute: The method attribute specifies the HTTP method used to submit the form data to the server. The two most commonly used methods are:  1.Get  2.Post  GET: This method appends the form data to the URL of the action attribute and sends it as a query string.  POST: This method sends the form data as part of the HTTP request body. It is more secure than the GET method      action attribute: The action attribute specifies the URL to which the form data should be sent when the user submits the form. It is used in combination with the method attribute.  The <form> element can also have other attributes, such as enctype, which specifies how the form data should be encoded for submission (e.g., enctype="multipart/form-data" for file uploads) and target, which specifies where the form response should be displayed (e.g., in a new window or in the same window). | |
| **1.2.2** | **Inputs** | |
|  | the <input> element is used to create various types of form input fields that allow users to enter data. The type attribute of the <input> tag determines the specific type of input field.   1. Text Input:   <input type="text" name="username" placeholder="Enter your username">   1. Password Input:   <input type="password" name="password" placeholder="Enter your password">   1. Checkbox:   <input type="checkbox" name="subscribe" value="yes"> Subscribe to Newsletter   1. Radio Button:   <input type="radio" name="gender" value="male"> Male  <input type="radio" name="gender" value="female"> Female   1. Submit Button:   <input type="submit" value="Submit">   1. Reset Button:   <input type="reset" value="Reset">   1. File Input (for uploading files):   <input type="file" name="fileToUpload">   1. Hidden Input (not visible to the user):   <input type="hidden" name="user\_id" value="123">   1. Email Input (for email addresses):   <input type="email" name="user\_email" placeholder="Enter your email">   1. Number Input (for numeric values):   <input type="number" name="quantity" min="1" max="10">   1. Date Input (for dates):   <input type="date" name="event\_date">   1. Range Input (for selecting a value from a range):   <input type="range" name="volume" min="0" max="100">   1. Color Input (for selecting colors):   <input type="color" name="favorite\_color"> | |
| **1.2.3** | **Text area** | |
|  | the <textarea> element is used to create a multi-line text input area on a web page. It allows users to enter larger amounts of text, such as comments, messages, or other free-form input.  <label for="message">Enter your message:</label>  <textarea id="message" name="user\_message" rows="4" cols="50" placeholder="Type your message here..."></textarea> | |
| **1.2.4** | **Select Box** | |
|  | the <select> element is used to create a dropdown list, also known as a select box, on a web page. It allows users to choose one or more options from a list of predefined values. The <select> element contains one or more <option> elements as its child nodes, representing the available options in the dropdown list.  <label for="fruits">Select your favourite fruits:</label>  <select id="fruits" name="favorite\_fruits" multiple>  <option value="apple">Apple</option>  <option value="banana">Banana</option>  <option value="orange">Orange</option>  <option value="strawberry">Strawberry</option>  <option value="watermelon">Watermelon</option>  </select> | |
| **1.2.5** | **Checkbox** | |
|  | the <input> element with the type="checkbox" attribute is used to create a checkbox input on a web page. A checkbox allows users to select one or more options from a list of choices. When the checkbox is checked, its value will be submitted as part of the form data.  <label>  <input type="checkbox" name="fruit" value="apple">  Apple  </label>  <label>  <input type="checkbox" name="fruit" value="banana">  Banana  </label>  <label>  <input type="checkbox" name="fruit" value="orange">  Orange  </label> | |
| **1.2.6** | **Radio button** | |
|  | the <input> element with the type="radio" attribute is used to create radio buttons on a web page. Radio buttons allow users to select only one option from a group of choices. When a radio button is selected, it marks its corresponding value as the one chosen by the user.  <label>  <input type="radio" name="gender" value="male">  Male  </label>  <label>  <input type="radio" name="gender" value="female">  Female  </label>  <label>  <input type="radio" name="gender" value="other">  Other  </label> | |
| **1.2.7** | **Button** | |
|  | the <button> element is used to create a clickable button on a web page. Buttons can be used for various purposes, such as submitting a form, triggering an action, or navigating to another page.  <button type="submit">Submit</button>  <button type="reset">Reset</button>  <button type="button" onclick="alert ('Button clicked!')">Click Me! </button> | |
| **1.2.8** | **Submit button** | |
|  | The submit button: The <button> element has a type="submit" attribute, which makes it a submit button. When clicked, it will initiate the form submission process.  When the user fills in the username and password field and clicks the submit button, the form data will be sent to the URL specified in the form's action attribute  <button type="submit">Submit</button> | |
| **1.2.9** | **File control with its attribute** | |
|  | the <input> element with type="file" is used to create a file upload control. It allows users to select and upload files from their local device to the server. The file upload control is commonly used in web forms that require users to upload documents, images, or other types of files  <form action="/upload" method="post" enctype="multipart/form-data">  <label for="file">Select a file to upload:</label>  <input type="file" id="file" name="fileToUpload">  <input type="submit" value="Upload File">  </form> | |
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| **1.3** | **Control’s Attribute** | |
| **1.3.1** | **Name** | |
|  | It is used to identify form elements, and its value is sent to the server when the form is submitted. The name attribute plays a significant role in associating form data with their corresponding input elements.  <label><input type="radio" name="gender" value="male"> Male</label>  <label><input type="radio" name="gender" value="female"> Female</label> | |
| **1.3.2** | **Id** | |
|  | the id attribute is used to uniquely identify an element on a web page.  The id attribute is an essential tool for various purposes, including CSS styling, JavaScript manipulation  <!DOCTYPE html>  <html>  <head>  <title>My Web Page</title>  <style>  #ishika {  background-color: lightblue;  padding: 20px;  }  </style>  </head>  <body>  <div id="ishika">  <h1>Hello, World! </h1>  <p>This is my web page content.</p>  </div>  </body>  </html> | |
| **1.3.3** | **Value** | |
|  | the value attribute is used to specify the value of an element, primarily for form controls. It is one of the most common attributes used in input elements to define the initial or default value of the input field.  <input type="text" name="username" value="JohnDoe"> | |
| **1.3.4** | **Class** | |
|  | the class attribute is used to assign one or more class names to an element. The class attribute allows you to group multiple elements together, giving them a shared identity or common styling.  <!DOCTYPE html>  <html>  <head>  <title>My Web Page</title>  <style>  .ishika {  background-color: lightblue;  padding: 20px;  }  </style>  </head>  <body>  <div class="ishika">  <h1>Hello, World!</h1>  <p>This is my web page content.</p>  </div>  </body>  </html> | |
| **1.4** | **Basic tags with its Attribute** | |
| **1.4.1** | **Img tag** | |
|  | The <img> tag in HTML is used to embed an image on a web page. It allows you to display images in various formats, such as JPEG, PNG, GIF, and more.  <!DOCTYPE html>  <html>  <head>  <title>My Web Page</title>  </head>  <body>  <img src="example.jpg" alt="Example Image" width="300" height="200">  </body>  </html> | |
|  | **A tag** | |
|  | The <a> tag in HTML is used to create hyperlinks, commonly known as anchor links, that allow users to navigate between different web pages or resources on the internet. When a user clicks on an <a> tag, the browser follows the URL specified in the href attribute, directing the user to the linked page or resource.  <ul>  <li><a href="https://www.example.com">Example Website</a></li>  <li><a href="page2.html">Page 2</a></li>  <li><a href="#section3">Jump to Section 3</a></li>  </ul> | |
| **1.4.2** | **What is meta tag** | |
|  | the <meta> tag is used to provide metadata about the web page. Metadata is information about the web page that is not visible on the page itself but is used by browsers and search engines for various purposes. The <meta> tag is typically placed in the <head> section of an HTML document.  <meta name="description" content="This is my web page.">  <meta name="keywords" content="HTML, CSS, JavaScript"> | |
|  | **Use of meta tag** | |
|  | The <meta> tag in HTML is used to provide various types of metadata about a web page.   1. **Character Encoding:** 2. **Viewport for Responsive Design:** 3. **Page Description and Keywords:** 4. **Author and Copyright:** 5. **Robots and Search Engine Behaviour:** 6. **Refresh and Redirect:** 7. **Cache Control:** | |
| **1.4.3** | **What is Responsive Website** | |
|  | A responsive website is a type of website design that adapts and optimizes its layout and content to provide an optimal user experience on various devices and screen sizes. This means that the website's design, images, and other elements dynamically adjust and rearrange themselves based on the screen size of the device used to access the site. Responsive web design aims to ensure that the website looks and functions well, whether it is viewed on a desktop computer, laptop, tablet, or smartphone. | |
|  | **How user can do it?** | |
|  | Use Media Queries  Use Flexible Layouts  Use Flexible Units  The CSS Position Property  Images Responsive  By using CSS properties like Flexbox, Grid, and so on, you can easily achieve this.  **CSS Grid**: CSS Grid is a two-dimensional layout system for creating responsive web designs.  It allows you to define rows and columns in a grid, and then place and align content within those grid cells.  **Flexbox**: CSS Flexbox is a one-dimensional layout system for creating flexible and responsive web designs. | |